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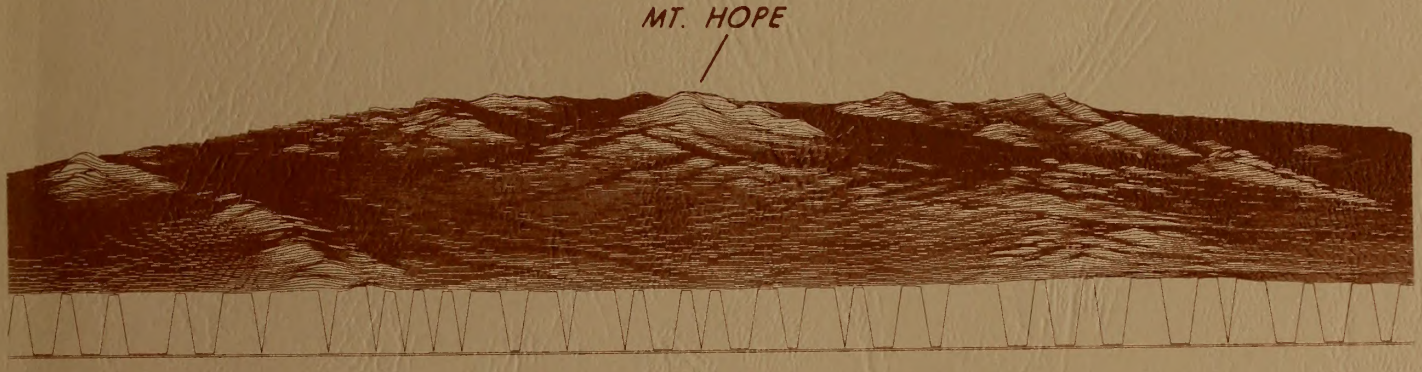
HYDROLOGY RESOURCES

TECHNICAL REPORT NO.4

MT. HOPE MOLYBDENUM PROJECT

VOLUME II OF II

PLATES



View from the south looking north

U.S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN, NEVADA

DECEMBER 1984

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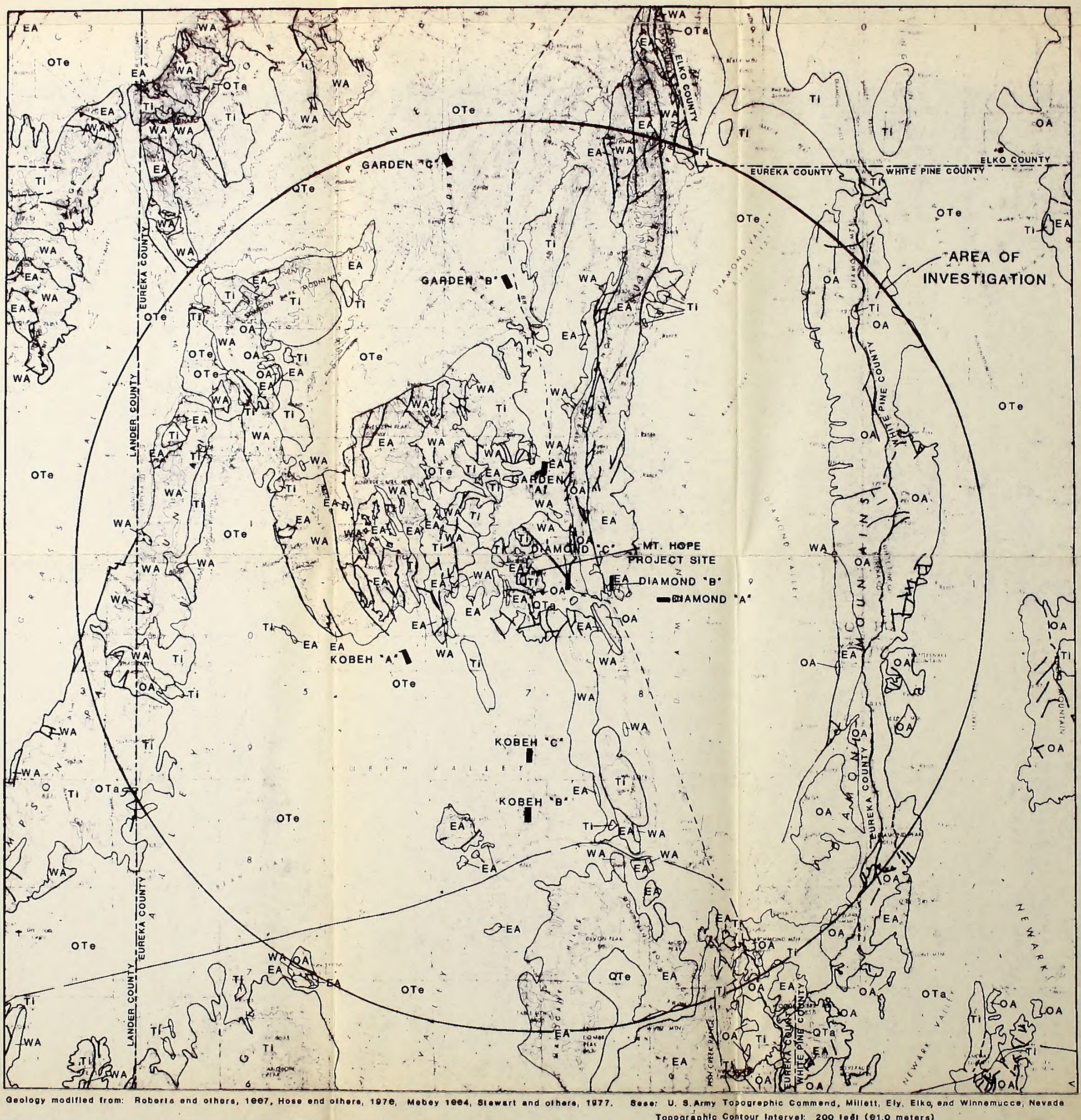
Generalized Regional Geology

FIGURE 2-4



Geology modified from: Roberts and others, 1967, Hose and others, 1976; Mabey 1964, Stewart and others, 1977. Base: U. S. Army Topographic Command, Millett, Ely, Elko, and Winnemucca, Nevada Topographic Contour Interval: 200 feet (61.0 meters)

EXPLANATION

Source: Hydro-Search, Inc., 1982

Cenozoic — Quaternary | Tertiary

Mesozoic

Paleozoic

OTa — Alluvium

Ti — Tertiery volcanics and intrusives, undifferentiated

OA — Overlap Assemblage; dominantly conglomerate, sandstone and shale with minor limestone, undifferentiated

WA — Western Assemblage; dominately shale, chert, quartzite, and andesitic volcanic rocks, undifferentiated

EA — Eastern Assemblage; dominantly limestone and dolomite, undifferentiated

Geologic Contact

Fault, dashed where location approximate

Thrust Fault, teeth on upper plate

Well Field Location — KOBEH "A"

N

0 5.0 10.0 15.0 Kilometers

0 5.0 10.0 15.0 Miles

1:250,000

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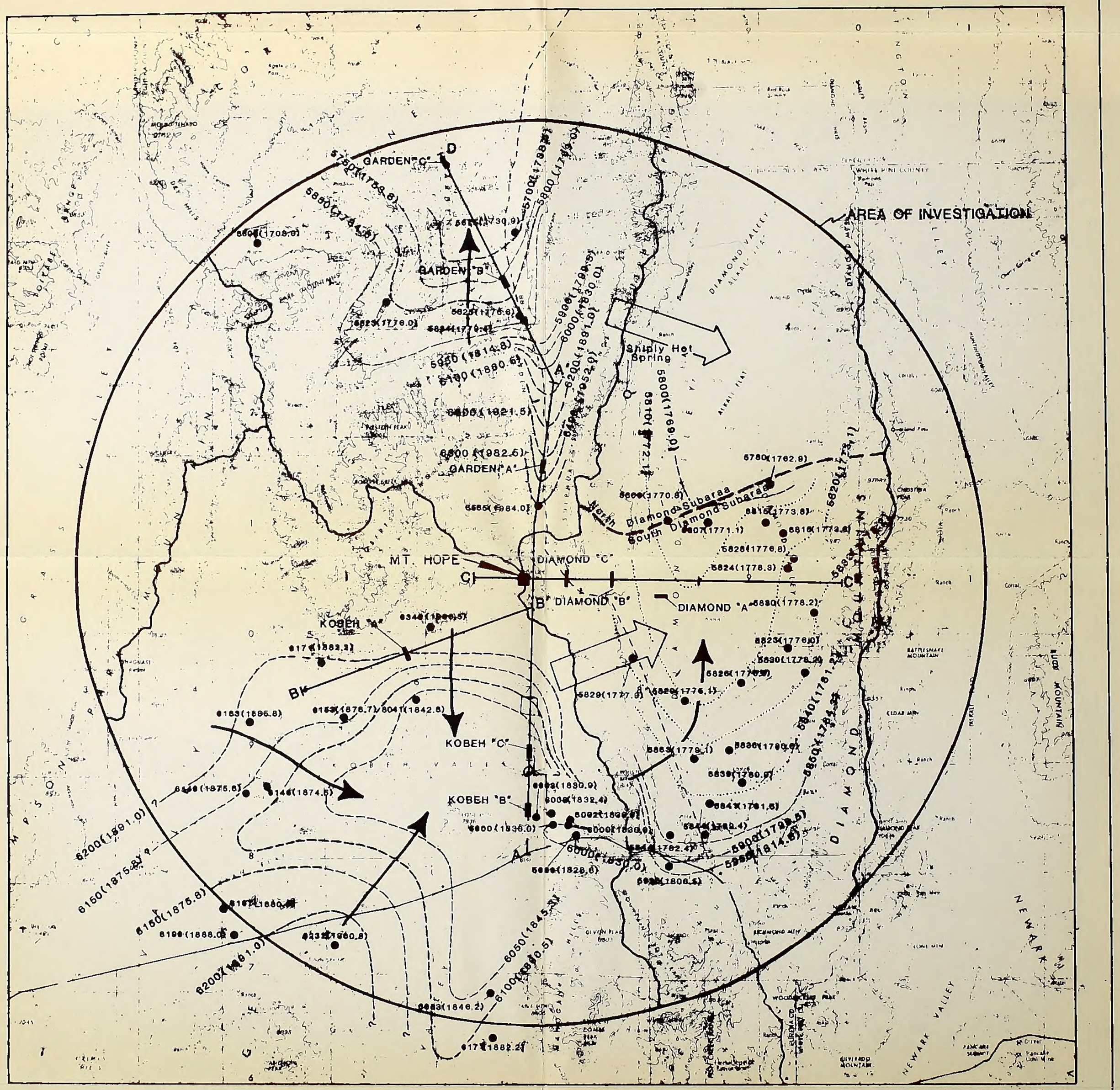
GENERALIZED REGIONAL GEOLOGY

U.S. Department of the Interior
Bureau of Land Management

FIGURE 2-4

Regional Groundwater Flow Systems

FIGURE 2-6


AREA OF INVESTIGATION
GARDEN "C"
GARDEN "B"
GARDEN "A"
MT. HOPE
DIAMOND "C"
DIAMOND "B"
DIAMOND "A"
KOBEH "A"
KOBEH "B"
KOBEH "C"
Shirly Hot Spring
North Diamond Subarea
South Diamond Subarea
A
A'
B
B'
C
C'
D
5760(1756.6)
5850(1784.3)
5900(1799.5)
5700(1738.1)
5800(1768.6)
6000(1830.0)
6200(1891.0)
6150(1875.8)
6100(1860.5)
6050(1845.3)
6500(1982.6)
6565(1984.0)
6200(1891.0)
6150(1875.8)
6100(1860.5)
6050(1845.3)
6200(1891.0)
5900(1799.5)
5850(1784.3)
5800(1768.6)
5840(1781.2)
5820(1775.1)
5780(1762.9)
5800(1770.8)
5816(1773.8)
5807(1771.1)
5828(1776.8)
5824(1778.3)
5830(1778.2)
5823(1776.0)
5826(1777.0)
5829(1777.9)
5829(1776.1)
5840(1781.2)
5836(1780.0)
5839(1780.9)
5844(1781.5)
5844(1782.4)
5844(1782.4)
5844(1780.4)
5900(1799.5)
5850(1784.3)
5800(1768.6)
5840(1781.2)
5820(1775.1)
5780(1762.9)
5800(1770.8)
5816(1773.8)
5807(1771.1)
5828(1776.8)
5824(1778.3)
5830(1778.2)
5823(1776.0)
5826(1777.0)
5829(1777.9)
5829(1776.1)
5840(1781.2)
5836(1780.0)
5839(1780.9)
5844(1781.5

Water Level Elevations

FIGURE 2-7

SOURCE: HYDRO-SEARCH, INC., 1983

EXPLANATION

6018 (1886.0) — Water Level Elevation, feet (metere)
Measurament on 8/3-4/82.

6050 (1844.0) — Water Level Elevation Contour, feet (metere)

0 1 2 Kilometers

0 1 2 Miles

Scale: 1:62,500

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WATER LEVEL ELEVATIONS

U.S. Department of the Interior
Bureau of Land Management

FIGURE 2-7

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Generalized Geology and Faults in the Vicinity of the Mine Site

FIGURE 2-9

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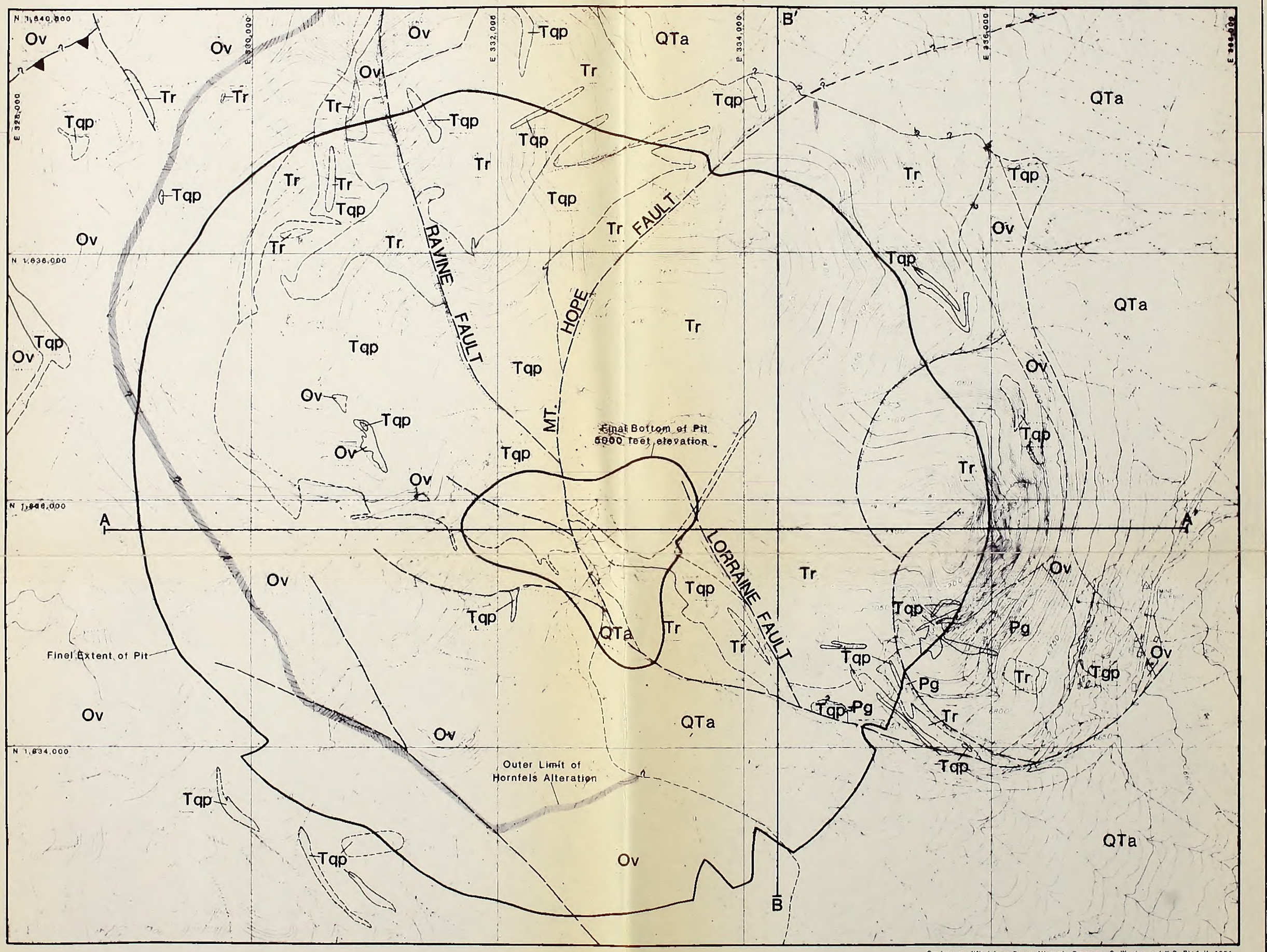

EXPLANATION

OTe - Alluvium

Tgp - Grenodiorite porphyry

Tqp - Quartz porphyry

Tr - Rhyolite

Pg - Gerden Valley Formetion (included in OA of Plete 1)

Ov - Vinini Formation

Geologic contact, deshed where epproximate, queried where inferred

Normal fault, deshed where epproximete, queried where inferred

Thrust feult, epproximete, teeth on upper plete

Cross Section A — A

Geology modified from Exxon Minerals Company, G. Westra and K.B. Riedell, 1981
Conceptual final pit configuration supplied by Exxon Minerals Company
Map generated by Hydro-Search, Inc., 1982.

Contour Intervel: 10 feet
(3.028 meters)

0 100 200 300 meters
1:4800
0 400 800 1200 feet

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GENERALIZED GEOLOGY AND FAULTS IN THE VICINITY OF THE MINE SITE

U.S. Department of the Interior
Bureau of Land Management

FIGURE 2-9

Generalized Hydrogeologic Cross Sections in the Vinicity of the Mine Site

FIGURE 2-10

LOOKING NORTH

WEST — A — A′ — EAST

elevation, feet: 8000, 7600, 7200, 6800, 6400, 6000, 5600, 5200, 4800, 4400, 4000

elevation, meters: 2400, 2300, 2200, 2100, 2000, 1900, 1800, 1700, 1600, 1500, 1400, 1300

Outer Limit of Hornfels Alteration

5 years (Exxon)

~14 years (projected)

~20 years (projected)

Lorraine Fault

Mt. Hope Fault

OTa, Tr, Tqp, Ov, Tgr

E 330,000 — E 332,000 — E 334,000 — E 336,000

LOOKING WEST

SOUTH — B — B′ — NORTH

elevation, feet: 7600, 7200, 6800, 6400, 6000, 5600, 5200, 4800, 4400, 4000

elevation, meters: 2300, 2200, 2100, 2000, 1900, 1800, 1700, 1600, 1500, 1400, 1300

5 years(Exxon)

14 years (projected)

~20 years (projected)

Lorraine Fault

Mt. Hope Fault

OTa, Tr, Tqp, Ov, Dd?, Tgr

N 1,834,000 — N 1,836,000 — N 1,838,000 — N 1,840,000

Source: Hydro-Search, Inc., 1982; Modified from Exxon Minerals Company

EXPLANATION

OTa - Alluvium

Tgr - Granite

Tqp - Quartz porphyry

Tr - Rhyolite

Dd - Eastern Assemblage carbonates

Ov - Vinini Formation

Geologic contact, approximate

Fault, approximate, queried where inferred

Estimated ground-water level

Pit outline, approximate

Horizontal Scale: 1 inch = 400 feet

Vertical Scale: 1 inch = 400 feet

No Vertical Exaggeration

Lines of cross sections are shown on Figure 7-3

0 100 200 300 meters

1:4800

0 400 800 1200 feet

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GENERALIZED HYDROGEOLOGIC CROSS SECTIONS IN THE VICINITY OF THE MINE SITE

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Bureau of Land Management

FIGURE 2-10

Regional Surface Water Drainage

FIGURE 2-11

EXPLANATION

- Major Drainage Basin Divide
- Minor Drainage Basin Divide
- Perennial Streams
- Ephemeral Streams
- Crest-Stage Gage ⊙

SOURCE: HYDRO-SEARCH, INC., 1982

0 1.0 2.0 3.0 Kilometers 0 1.0 2.0 3.0 Miles

1:62,500

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REGIONAL SURFACE WATER DRAINAGE

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FIGURE 2-11

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Surface Water Drainage Features
and 100-Year Flood Plain
FIGURE 2-13

Base: Modified US Geological Survey 15 minuteTopographic Quadrangles, Roberts Creek Mountain, Garden Valley, Bartine Ranch, and Whistler Mountain, Nevada.

SOURCE: HYDRO-SEARCH, INC., 1983

EXPLANATION

- Major Drainage Basin Boundary
- Wetershed Boundaries
- Ephemeral Streems
- 8 ■ Stream Chennel Cross Section and Runoff Estimation Point
- Flood Plain Aree for 100 – yeer Design Storm (overbenk flow)

0 1/2 1.0 Kilometer

0 1/2 1.0 Mile

Scale: 1:24,000

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SURFACE WATER DRAINAGE FEATURES & 100-YEAR FLOOD PLAIN

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FIGURE 2-13

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